

Japanese Kokai Patent Application No. P2002-262192A

Job No.: 228-122356

Ref.: JP2002262192A/Japanese patent/PU020452 Japan and US/JMF(Jill)/Order No. 8965

Translated from Japanese by the McElroy Translation Company

800-531-9977

customerservice@mcelroytranslation.com

(19) JAPANESE PATENT OFFICE (JP)
 (12) KOKAI TOKOUHYO PATENT GAZETTE (A)
 (11) PATENT APPLICATION PUBLICATION
 NO. P2002-262192A

(43) Publication Date: September 13, 2002

(51) Int. Cl. ⁷ : H 04 N 5/445 H 04 B 1/16 H 04 N 5/44 5/765	Identification Codes: FI	H 04 N 5/445 H 04 B 1/16 H 04 N 5/44	Theme Codes (for reference) Z 5C018 M 5C025 A 5C063 Z 5K061
	5/781	S10D	
	Examination Request: Not filed	No. of Claims: 27 (Total of 14 pages; OL)	
(21) Filing No.: Japanese Patent Application No. P2001-55490 (22) Filing Date: February 28, 2001	(71) Applicant: 00005821 Matsushita Electric Industrial Co., Ltd. 1006 Oazakadoma, Kadoma-shi, Osaka-fu (72) Inventors: Tsuneichi Koeda Matsushita-Kotobuki Electronics Industries, Ltd. 8-1 Furushin-machi, Takamatsu-shi, Kagawa-ken Yasusuke Tsurui 8-1 Matsushita-Kotobuki Electronics Industries, Ltd. Furushin-machi, Takamatsu-shi, Kagawa-ken (74) Agent: 100081813 Kenichi Hayase, patent attorney		

Continued on last page

(54) [Title] INFORMATION DISPLAY DEVICE

(57) Abstract

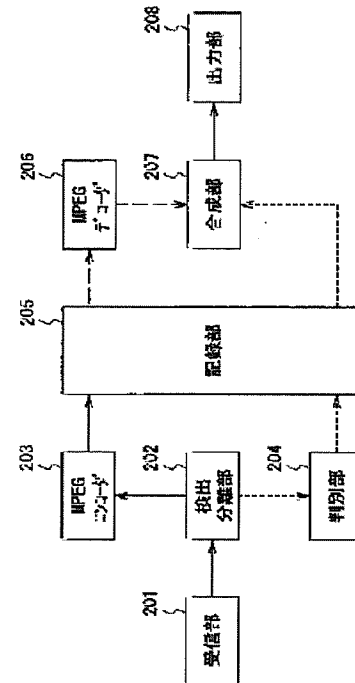
Problem

To provide a scheme characterized by the fact that when an earthquake alarm or other emergency information is received, and the user is watching an image recorded on a hard disk recorder or the like on an information display device, the user can be notified of the emergency information.

Constitution

When a video/audio signal with emergency information or another information signal multiplexed in it is broadcast, from the video/audio signal received by receiving part (201), only the information signal is output by detecting/separating part (201) and the output signal is sent via judgment part (204) and recording part (205) to

synthesis part (207). Said synthesis part (207) synthesizes the information signal with the video/audio signal being viewed and outputs the synthesized signal from output part (208), so that the user can detect in real time the information signal although the user is not watching the channel for broadcasting the information signal.



Key:	201	Receiving part
	202	Detecting/separating part
	203	MPEG encoder
	204	Judgment part
	205	Recording part
	206	MPEG decoder
	207	Synthesis part
	208	Output part

Claims

1. An information display device characterized by the fact that it is a video/audio receiver that receives a video/audio signal with an information signal multiplexed in it, and it has the following means:
 - a receiving means that receives said video/audio signal,
 - plural output means that output said video/audio signal or a video/audio signal different from said video/audio signal,
 - an information signal detecting means that detects whether the information signal is multiplexed in the video/audio signal received with said receiving means,
 - an information signal separating means that separates said information signal from said video/audio signal when said information signal is multiplexed in said video/audio signal,

and an information signal synthesis means that synthesizes said information signal with the video/audio signal sent to the output means and sends the obtained synthesized signal to said output means.

2. The information display device described in Claim 1, characterized by the fact that it has a recorder that records said information signal separated with said information signal separating means.

3. The information display device described in Claim 2, characterized by the fact that it has an information signal synthesis means that synthesizes the information signal recorded in said recorder with the video/audio signal being sent to the output means now in use.

4. The information display device described in any of Claims 1-3, characterized by the fact that

it has a display means that displays the information signal separated with said information signal separating means or the information signal recorded in said recorder.

5. The information display device described in any of Claims 2-4, characterized by the fact that

it has a list display means that displays all of the information signals recorded in said recorder as a list.

6. The information display device described in any of Claims 2-4, characterized by the fact that

it has an all-time-ON display means that carries out all-time-ON display for the information signals recorded in said recorder with said output means or said display means.

7. The information display device described in Claim 6, characterized by the fact that it has a display OFF means that turns OFF the display of said information signals at any time preset by the user.

8. The information display device described in Claim 6, characterized by the fact that it has an automatic switching display means that automatically switches each information signal for display at a preset timing assigned by the user when plural information signals are recorded in said recorder.

9. The information display device described in Claim 6, characterized by the fact that it has a manual information display OFF means that turns OFF the display of said information signal by an operation of the user.

10. The information display device described in Claim 6, characterized by the fact that it has a manual switching display means that switches the information signal for display by an operation of the user when plural information signals are recorded in said recorder.

11. The information display device described in any of Claims 1-10, characterized by the fact that

it has a voice announcing means that announces by a voice the presence of said information signal when said information signal is output from said output means or displayed on said display means.

12. The information display device described in any of Claims 1-10, characterized by the fact that

it has a voice output means that converts the content of the information signal separated with said information signal separating means or the information signal recorded in said recorder to a voice with a voice conversion means, and outputs the voice.

13. The information display device described in Claim 2, characterized by the fact that it has

an information signal judgment means that compares an information signal newly separated with said information signal separating means with said information signal recorded in said recorder and determines whether they are information signals of the same content when said information signal is already recorded in said recorder,

and a recording means that records the newly separated information signal separated with said information signal separating means only when it is judged by said information signal judgment means that the information signals are different.

14. The information display device described in Claim 13, characterized by the fact that

it has an information signal judgment means that compares an information signal newly separated with said information signal separating means with said information signal recorded in said recorder when an information signal is already recorded in said recorder.

15. The information display device described in Claim 13, characterized by the fact that

it has an information signal judgment means that functions as follows: when annexed information for identifying the type and content of said information signal is contained in said information signal recorded in said recorder, it compares the information signal newly separated with said information signal separating means with said information signal recorded in said recorder by means of their annexed information.

16. The information display device described in Claim 13, characterized by the fact that it has

an information signal judgment means that functions as follows: when an information signal is recorded in said recorder at the receiving time of said receiving means, it compares the information signal newly separated with said information signal separating means with said information signal recorded in said recorder, and judges whether the difference in the receiving time is longer than a desired time,

and it has a recording means that records the information signal newly separated with said information signal separating means in the receiving time zone only when it is judged by

said information signal judgment means that the receiving time of said information signal is longer than the desired time.

17. The information display device described in Claim 3, characterized by the fact that it has an automatic deleting means that synthesizes the information signal recorded in said recorder with the video/audio signal sent to the output means now in use and sends the result to said output means, and then automatically deletes the information signal recorded in said recorder.

18. The information display device described in Claim 3, characterized by the fact that it has a manual detecting means that functions as follows: after the information signal recorded in said recorder is synthesized with the video/audio signal sent to the output means now in use and the result is sent to the output means, the user checks it and deletes said information signal recorded in said recorder.

19. The information display device described in any of Claims 1-18, characterized by the fact that it has the following means:

an information signal detecting means that detects the VBI (Vertical Blanking Interval) of the video signal received with said receiving means, and detects XDS (eXtended Data Service) in the VBI,

and an information signal separating means that functions as follows: when said XDS is detected with said information signal detecting means, said XDS or the element of said XDS is separated from said video signal and is used as the information signal.

20. The information display device described in any of Claims 1-18, characterized by the fact that

it has an information signal detecting means that functions as follows: when the video/audio signal received with said receiving means is a digital broadcast signal, it detects whether the information signal is multiplexed in the user data region of the digital broadcast signal.

21. The information display device described in any of Claims 1-20, characterized by the fact that it has the following parts:

said receiver that records the video/audio signal received with said receiving means,
a program setting means that allows the user to set a program pertaining to the type and content of said information signal,

and a timer recording means that functions as follows: when said information signal detecting means detects said information signal, timer recording is set for the program pertaining to the type and content of said information signal preset with said program setting means.

22. The information display device described in any of Claims 1-20, characterized by the fact that it has the following parts:

said recorder that records the video/audio signal received with said receiving means,
and a timer recording means that functions as follows: when said information signal is detected with said information signal detecting means, said information signal is searched with a keyword of an EPG (Electronic Program Guide), and, if a corresponding program is present, the program is set for timer recording.

23. The information display device described in Claim 22, characterized by the fact that it has the following means:

an EPG refreshing means that refreshes the EPG when said information signal is detected with said information signal detecting means,

and a timer recording means that searches said information signal with a keyword of the EPG after refreshing of the EPG, and, if a corresponding program is present, the program is set for timer recording.

24. The information display device described in any of Claims 1-23, characterized by the fact that

it has an information signal transfer means that transfers the information signal separated with said information signal separating means to another terminal.

25. The information display device described in any of Claims 21-23, characterized by the fact that it has the following means:

an image extracting means that extracts images in frame units from said program when the program set for timer recording by said timer recording means is recorded,

and an information signal transfer means that transfers the images extracted with said image extracting means to another terminal.

26. The information display device described in Claim 25, characterized by the fact that it has the following means:

a scene cut line detecting means that detects scene cut lines of said program,

and an image extracting means that extracts frame images from said scene cut lines.

27. The information display device described in any of Claims 24-26, characterized by the following facts:

it has an information signal identifying means that identifies the information signal separated with said information signal separating means,

and a timer recording means that sets any type of information signal for timer recording;

and it has an image extracting means that functions as follows: when the program set for timer recording with said timer recording means is recorded, images are extracted in frame units from the program pertaining to an information signal of any type among said programs.

Detailed explanation of the invention

[0001]

Technical field of the invention

The present invention pertains to an information display device that receives and outputs a video/audio signal having an information signal multiplexed in it.

[0002]

Prior art

At present, an earthquake or other emergency information is annexed to a TV or other broadcast for transmission to inform the public. For example, in analog broadcasting, emergency information is multiplexed to the video/audio signal for transmission. On the other hand, in digital broadcasting, an information signal is multiplexed to the user data region for transmission. The user can see the emergency information from the display of the information display device.

[0003]

Figure 7 is a block diagram illustrating the constitution of emergency information notification in the prior art. As shown in the figure, information display device (701) receives a video/audio signal having the emergency information multiplexed to it from antenna (702) via signal line (703), and emergency information (705) is displayed on screen (704) of the information display device.

[0004]

As said prior art, Japanese Kokai Patent Application No. Hei 6[1994]-237423 disclosed a method in which the information signal is not output based on the judgment of the user when a video/audio signal having an information signal multiplexed in it is received. According to Japanese Kokai Patent Application No. Hei 6[1994]-237423, the television signal receiver controls the output of an information signal in that it has a means that switches so that the information signal is not output or the information signal is output corresponding to the content of the received information signal.

[0005]

Also, Japanese Kokai Patent Application No. Hei 11[1999]-146377 disclosed a method in which when a video/audio signal having an information signal multiplexed in it is received, it is shown independent of the intention of the user. According to Japanese Kokai Patent Application No. Hei 11[1999]-146377, the television signal receiver has a constitution with the following

features: when an information signal is received, the channel of the television receiver is switched independent of the intention of the user; even if the power is turned off for the television set, the power is automatically turned on, or the channel is changed to the program for broadcasting the information signal for broadcasting emergency information.

[0006]

Problems to be solved by the invention

However, the aforementioned prior art has problems. According to the prior art, when the information display device receives emergency information, if the user is not watching the television set or another information display device or if the user is watching the image of a VCR, hard disk recorder or another video recording device, the user cannot learn of the emergency information. Also, even if the emergency information is recorded together with a program in a VCR, hard disk recorder or another video recording device, the user still cannot learn of the emergency information if the user plays a program to view the portion where the emergency information is recorded.

[0007]

The objective of the present invention is to solve the aforementioned problems of the prior art by providing an information display device characterized by the fact that by arranging a means that detects and separates a transmitted emergency information signal and synthesizes it with a desired video/audio signal, the user can learn of the information signal in real time even without watching the program that broadcasts the information signal.

[0008]

Means to solve the problems

In order to solve the aforementioned problems, the invention described in Claim 1 of the present invention provides an information display device characterized by the fact that it is a video/audio receiver that receives a video/audio signal with an information signal multiplexed in it, and it has the following means: a receiving means that receives said video/audio signal, plural output means that outputs said video/audio signal or a video/audio signal different from said video/audio signal, an information signal detecting means that detects whether the information signal is multiplexed in the video/audio signal received with said receiving means, an information signal separating means that separates said information signal from said video/audio signal when said information signal is multiplexed in said video/audio signal, and an information signal synthesis means that synthesizes said information signal with the video/audio signal sent to the output means and sends the obtained synthesized signal to said output means.

[0009]

The information display device described in Claim 2 of the present invention pertains to the information display device described in Claim 1, characterized by the fact that it has a recorder that records said information signal separated with said information signal separating means.

[0010]

The information display device described in Claim 3 of the present invention pertains to the information display device described in Claim 2, characterized by the fact that it has an information signal synthesis means that synthesizes the information signal recorded in said recorder with the video/audio signal being sent to the output means now in use.

[0011]

The information display device described in Claim 4 of the present invention pertains to the information display device described in any of Claims 1-3, characterized by the fact that it has a display means that displays the information signal separated with said information signal separating means or the information signal recorded in said recorder.

[0012]

The information display device described in Claim 5 of the present invention pertains to the information display device described in any of Claims 2-4, characterized by the fact that it has a list display means that displays all of the information signals recorded in said recorder as a list.

[0013]

The information display device described in Claim 6 pertains to the information display device described in any of Claims 2-4, characterized by the fact that it has an all-time-ON display means that carries out all-time-ON display for the information signals recorded in said recorder with said output means or said display means.

[0014]

The information display device described in Claim 7 of the present invention pertains to the information display device described in Claim 6, characterized by the fact that it has a display OFF means that turns OFF the display of said information signals at any time preset by the user.

[0015]

The information display device described in Claim 8 of the present invention pertains to the information display device described in Claim 6, characterized by the fact that it has an automatic switching display means that automatically switches each information signal for display at a preset timing assigned by the user when plural information signals are recorded in said recorder.

[0016]

The information display device described in Claim 9 of the present invention pertains to the information display device described in Claim 6, characterized by the fact that it has a manual information display OFF means that turns OFF the display of said information signal by an operation of the user.

[0017]

The information display device described in Claim 10 of the present invention pertains to the information display device described in Claim 6, characterized by the fact that it has a manual switching display means that switches the information signal for display by an operation of the user when plural information signals are recorded in said recorder.

[0018]

The information display device described in Claim 11 pertains to the information display device described in any of Claims 1-10, characterized by the fact that it has a voice announcing means that announces by a voice the presence of said information signal when said information signal is output from said output means or displayed on said display means.

[0019]

The information display device described in Claim 12 of the present invention pertains to the information display device described in any of Claims 1-10, characterized by the fact that it has a voice output means that converts the content of the information signal separated with said information signal separating means or the information signal recorded in said recorder to a voice with a voice conversion means, and outputs the voice.

[0020]

The information display device described in Claim 13 of the present invention pertains to the information display device described in Claim 2, characterized by the fact that it has an

information signal judgment means that compares an information signal newly separated with said information signal separating means with said information signal recorded in said recorder and determines whether they are information signals of the same content when said information signal is already recorded in said recorder, and a recording means that records the newly separated information signal separated with said information signal separating means only when it is judged by said information signal judgment means that the information signals are different.

[0021]

The information display device described in Claim 14 of the present invention pertains to the information display device described in Claim 13, characterized by the fact that it has an information signal judgment means that compares an information signal newly separated with said information signal separating means with said information signal recorded in said recorder when an information signal is already recorded in said recorder.

[0022]

The information display device described in Claim 15 of the present invention pertains to the information display device described in Claim 13, characterized by the fact that it has an information signal judgment means that functions as follows: when annexed information for identifying the type and content of said information signal is contained in said information signal recorded in said recorder, it compares the information signal newly separated with said information signal separating means with said information signal recorded in said recorder by means of their annexed information.

[0023]

The information display device described in Claim 16 of the present invention pertains to the information display device described in Claim 13, characterized by the fact that it has an information signal judgment means that functions as follows: when an information signal is recorded in said recorder at the receiving time of said receiving means, it compares the information signal newly separated with said information signal separating means with said information signal recorded in said recorder, and judges whether the difference in the receiving time is longer than a desired time, and it has a recording means that records the information signal newly separated with said information signal separating means in the receiving time zone only when it is judged by said information signal judgment means that the receiving time of said information signal is longer than the desired time.

[0024]

The information display device described in Claim 17 of the present invention pertains to the information display device described in Claim 3, characterized by the fact that it has an automatic deleting means that synthesizes the information signal recorded in said recorder synthesized with the video/audio signal sent to the output means now in use and sends the result to said output means, and then automatically deletes the information signal recorded in said recorder.

[0025]

The information display device described in Claim 18 of the present invention pertains to the information display device described in Claim 3, characterized by the fact that it has a manual detecting means that functions as follows: after the information signal recorded in said recorder is synthesized with the video/audio signal sent to the output means now in use and the result is sent to the output means, the user checks it and deletes said information signal recorded in said recorder.

[0026]

The information display device described in Claim 19 of the present invention pertains to the information display device described in any of Claims 1-18, characterized by the fact that it has the following means: an information signal detecting means that detects the VBI (Vertical Blanking Interval) of the video signal received with said receiving means, and detects XDS (eXtended Data Service) in the VBI, and an information signal separating means that functions as follows: when said XDS is detected with said information signal detecting means, said XDS or the element of said XDS is separated from said video signal and is used as the information signal.

[0027]

The information display device described in Claim 20 of the present invention pertains to the information display device described in any of Claims 1-18, characterized by the fact that it has an information signal detecting means that functions as follows: when the video/audio signal received with said receiving means is a digital broadcast signal, it detects whether the information signal is multiplexed in the user data region of the digital broadcast signal.

[0028]

The information display device described in Claim 21 of the present invention pertains to the information display device described in any of Claims 1-20, characterized by the fact that it

has the following parts: said receiver that records the video/audio signal received with said receiving means, a program setting means that allows the user to set a program pertaining to the type and content of said information signal, and a timer recording means that functions as follows: when said information signal detecting means detects said information signal, timer recording is set for the program pertaining to the type and content of said information signal preset with said program setting means.

[0029]

The information display device described in Claim 22 of the present invention pertains to the information display device described in any of Claims 1-20, characterized by the fact that it has the following parts: said recorder that records the video/audio signal received with said receiving means, and a timer recording means that functions as follows: when said information signal is detected with said information signal detecting means, said information signal is searched with a keyword of an EPG (Electronic Program Guide), and, if a corresponding program is present, the program is set for timer recording.

[0030]

The information display device described in Claim 23 of the present invention pertains to the information display device described in Claim 22, characterized by the fact that it has the following means: an EPG refreshing means that refreshes the EPG when said information signal is detected with said information signal detecting means, and a timer recording means that searches said information signal with a keyword of the EPG after refreshing of the EPG, and, if a corresponding program is present, the program is set for timer recording.

[0031]

The information display device described in Claim 24 of the present invention pertains to the information display device described in any of Claims 1-23, characterized by the fact that it has an information signal transfer means that transfers the information signal separated with said information signal separating means to another terminal.

[0032]

The information display device described in Claim 25 of the present invention pertains to the information display device described in any of Claims 21-23, characterized by the fact that it has the following means: an image extracting means that extracts images in frame units from said program when the program set for timer recording by said timer recording means is

recorded, and an information signal transfer means that transfers the images extracted with said image extracting means to another terminal.

[0033]

The information display device described in Claim 26 of the present invention pertains to the information display device described in Claim 25, characterized by the fact that it has the following means: a scene cut line detecting means that detects scene cut lines of said program, and an image extracting means that extracts frame images from said scene cut lines.

[0034]

The information display device described in Claim 27 of the present invention pertains to the information display device described in any of Claims 24-26, characterized by the following facts: it has an information signal identifying means that identifies the information signal separated with said information signal separating means, and a timer recording means that sets any type of information signal for timer recording; and it has an image extracting means that functions as follows: when the program set for timer recording with said timer recording means is recorded, images are extracted in frame units from the program pertaining to an information signal of any type among said programs.

[0035]

Embodiment of the present invention

In the following, the information display device of the present invention will be explained in detail with reference to figures.

Embodiment 1

In the following, Embodiment 1 of the information display device corresponding to the invention described in Claim 1 of the present invention will be explained with reference to Figure 1. Figure 1 is a block diagram illustrating the constitution of the information display device (TV) in Embodiment 1 of the present invention.

[0036]

As shown in the figure, (101) represents a receiving part (tuner), (102) represents a detecting/separating part, (103) represents an external input part, (104) represents a judgment part, (105) represents a switching part, (106) represents a synthesis part, and (107) represents an output part (TV screen).

[0037]

In the following, normal operation of an information display device with said constitution will be explained. Here, receiving part (101) receives a video/audio signal of a television broadcast sent from a broadcasting station. The video/audio signal received by receiving part (101) is sent via detecting/separating part (102) to switching part (105). Said external input part (103) receives a video/audio signal output from a VCR, television game machine or other video/audio device connected to the outside of the information display device, and the video/audio signal received by external input part (103) is sent to switching part (105). Said switching part (105) selects a video/audio signal from one of the video/audio signals sent from detecting/separating part (102) and external input part (103). The video/audio signal selected by switching part (105) is sent via synthesis part (106) to output part (107). Here, selection of the video/audio signal in switching part (105) may be executed using an operating means, such as a remote controller or a front panel or the like. The video/audio signal sent to output part (107) can be viewed and heard by the user through a monitor and a speaker.

[0038]

In the following, operation of the information display device in Embodiment 1 will be explained with reference to Figure 1. In this operation, the information signal contained in an earthquake alarm or other emergency information is multiplexed to the video/audio signal of the TV broadcast emitted from the broadcast station, and the video/audio signal selected by switching part (105) is the video/audio signal received by external input part (103).

[0039]

Said detecting/separating part (102) detects the information signal multiplexed in the video/audio signal that has been sent. Here, the information signal detected with detecting/separating part (102) is separated from the video/audio signal, and it is sent to judgment part (104). Said judgment part (104) judges the type of information signal that has been sent. Here, the type of information signal refers to the type of information, such as an earthquake alarm, election report, etc. An information signal as judgment of the type of judgment part (104) is sent to synthesis part (106). In this case, for example, an operating means, such as a remote controller, a front panel or the like, is used to preset the type of desired information signal viewed by the user, and judgment part (104) sends the information signal of the type set by the user to synthesis part (106). Said synthesis part (106) synthesizes the information signal with the video/audio signal sent from switching part (105), and it sends the obtained synthesized signal to output part (107). The video/audio signal sent to output part (107), together with the earthquake alarm, election report or other information, is viewed by the user.

[0040]

As explained above, for the information display device in Embodiment 1 of the present invention, by receiving an earthquake alarm or other emergency information while the user views the video/audio signal of a VCR, TV game, or the like as the external input, the user can learn of broadcasting emergency information in real time.

[0041]

Embodiment 2

In the following, Embodiment 2 of the information display device corresponding to the invention described in Claims 2-20 of the present invention will be explained with reference to Figures 2-4. Figure 2 is a block diagram illustrating the constitution of the information display device (hard disk recorder) in Embodiment 2 of the present invention. Figure 3 is a schematic diagram illustrating a list of information signals displayed on the display part in the information display device (hard disk recorder) in Embodiment 2 of the present invention. Figure 4 is a schematic diagram illustrating operation of the judgment part of the information display device (hard disk recorder) in Embodiment 2 of the present invention.

[0042]

As shown in Figure 2, (201) represents a receiving part (tuner), (202) represents a detecting/separating part, (203) represents an MPEG encoder, (204) represents a judgment part, (205) represents a recording part (hard disk recorder), (206) represents an MPEG decoder, (207) represents a synthesis part, and (208) represents an output part (display arranged on a TV screen or a front panel or the like).

[0043]

In the following, operation of an information display device with said constitution will be explained. Here, as shown in Figure 2, receiving part (201) receives a video/audio signal of a television broadcast sent from a broadcasting station. The video/audio signal received by receiving part (201) is sent to detecting/separating part (202). Said detecting/separating part (202) detects an information signal multiplexed to the video/audio signal that has been sent to it. The information signal detected with said detecting/separating part (202) is separated from the video/audio signal, and it is sent to judgment part (204). Here, the type of information signal refers to the type of information, such as an earthquake alarm, election report, etc. The information signal with type judged with judgment part (204) is sent to recording part (205), and, after recording in recording part (205), the information signal is sent to synthesis part (207). At

the same time, detecting/separating part (202) sends the video/audio signal to MPEG encoder (203). Said MPEG encoder (203) encodes the video/audio signal that has been sent, and it sends the signal to recording part (205). Here, when a video/audio signal has been encoded, such as in the case of digital broadcasting, the video/audio signal may also be directly sent from detecting/separating part (202) to recording part (205). Said recording part (205) respectively records the video/audio signal and information signal sent from MPEG encoder (203) and judgment part (204) on assigned regions. In this case, recording part (205) may guarantee from the start regions for recording various signals, that is, recording region (1) for recording a video/audio signal, and recording region (2) for recording an information signal. MPEG decoder (206) decodes the video/audio signal recorded in recording part (205), and it sends the signal to synthesis part (207). Said synthesis part (207) synthesizes the information signal sent from recording part (205) with the video/audio signal sent from MPEG decoder (206), and it sends the obtained signal to output part (208). The video/audio signal sent to output part (208) is viewed by the user together with the information of an earthquake alarm, election report, etc.

[0044]

Also, the recording part is a recording medium, such as a hard disk, that can be randomly accessed. Different regions of it are reserved as a recording region for a video/audio signal and a recording region for an information signal. Because the information signal is kept in an independent recording region, the information signal can be solely output from the recording part, so an information signal not viewed by the user can be seen by the user without requiring searching time.

[0045]

With regard to output part (208), in addition to a scheme in which the information signal sent from recording part (205) is synthesized with the video/audio signal and output by synthesis part (207), one may also adopt a scheme in which the information signal recorded in recording part (205) is not synthesized with the video/audio signal, but instead output by setting a display device, such as a front panel or the like, used solely for an information signal.

[0046]

As another scheme, an information signal indicating button may be arranged on a remote controller, front panel, or other operating means. For example, when the user presses said button, all of the information signals recorded in recording part (205) are output to form a menu, and, as shown in Figure 3, a list of information signals is output to output part (208).

[0047]

As another scheme that may be adopted, synthesis part (207) continuously synthesizes an information signal output from recording part (205) with the video/audio signal, so that an information signal is continually displayed via output part (208). When the all-time-ON display mode is to be cancelled, the user may manipulate a remote controller, front panel, or other operating means so that continuous synthesis by synthesis part (207) of an information signal output from recording part (205) to the video/audio signal is turned off, and display of the information signal is cancelled. In addition, when the user manipulates the operating means, if plural information signals are present in recording part (205), synthesis part (207) obtains a new information signal from recording part (205) and synthesizes it with the video/audio signal, so that the information signal displayed at the time is changed to display the next information signal by means of output part (208). In addition, one may also adopt a scheme in which although the user does not manipulate the operating means, the display of the information signal is still cancelled and the next information signal is newly displayed after a prescribed time. Here, the time period for display of an information signal can be set by the user by means of a remote controller, front panel, or other operating means.

[0048]

As another scheme that may be adopted, when detecting/separating part (202) detects multiplexing of the information signal to the video/audio signal that has been sent, it separates the information signal from the video/audio signal and sends it to judgment part (204), and judgment part (204) outputs a voice from output part (208) indicating that an information signal has been received. In this case, as another scheme that may be adopted, judgment part (204) converts the content of the received information signal to voice for output of a voice from output part (208). As another scheme that may be adopted, after a received information signal is recorded in recording part (205), judgment part (204) outputs a voice from output part (208) when the information signal is obtained from recording part (205).

[0049]

As shown in Figure 4, when an information signal has been recorded in recording part (205) shown in Figure 2 and the information signal sent to judgment part (204) shown in Figure 2 is the same information signal as that recorded in recording part (205), the information signal may be not sent to recording part (205). Here, as a means for judging that the information signal sent to judgment part (204) is the same information signal as that recorded in recording part (205), their character data may simply be compared. Also, when identification information of type, content, etc., is annexed to the information signal, the identification information may be

compared to judge whether the information signal is the same. In addition, when the same information, such as an earthquake alarm or other emergency information is repeatedly broadcast, it is also possible to judge that the information signal received at any time is the same information signal.

[0050]

Also, for an information signal sent from recording part (205) to synthesis part (207), after checking of the information by the user, said information signal from recording part (205) may be automatically deleted. Also, after an information signal sent from recording part (205) to synthesis part (207) is displayed via output part (208), when the user manipulates a remote controller, front panel, or other operating means to check the information, said information signal may be deleted from recording part (205).

[0051]

When the video/audio signal received by receiving part (201) is an analog broadcast signal, and the information signal is multiplexed as XDS of the VBI, as the means for detecting/separating the information signal from the video/audio signal in detecting/separating part (202), XDS is detected and is output as the information signal.

[0052]

Also, when the video/audio signal received by receiving part (201) is a digital broadcast signal, and the information signal is multiplexed in the user data region of the digital broadcast signal, as the means for detecting and separating the information signal from the video/audio signal in detecting/separating part (202), the user data may be output from said user data region.

[0053]

Also, when a VCR, television game, or other video/audio device is connected to the external input terminal of an information display device, and the user views a video/audio signal of the video/audio device by means of the information display device, as the video/audio signal with the information signal synthesized in it by synthesis part (207), the video/audio signal output from the video/audio device may be used.

[0054]

As explained above, for the information display device in Embodiment 2 of the present invention, when the user is away from home and cannot watch TV, or, although the user watches the TV, the user moves his/her eyes away from the TV due to another matter, so that the

emergency information is not seen, the user can be quickly notified of the emergency information. Also, by storing the content of a received emergency information in a recording part, display only at a time favored by the user is possible, and the emergency information can be shown to the user as demanded by the user.

[0055]

Embodiment 3

In the following, Embodiment 3 of the information display device corresponding to the inventions described in Claims 21-23 will be explained with reference to Figure 5. Figure 5 is a block diagram illustrating the constitution of the information display device (hard disk recorder) in Embodiment 3 of the present invention.

[0056]

As shown in the figure, (501) represents a receiving part (tuner), (502) represents a detecting/separating part, (503) represents an MPEG encoder, (504) represents a judgment part, (505) represents a recording part (hard disk), (506) represents an MPEG decoder, (507) represents a synthesis part, (508) represents an output part (display arranged on a TV screen or front panel or the like), (509) represents an EPG receiving part, and (510) represents a modem.

[0057]

In the following, operation of an information display device having the aforementioned constitution will be explained. Here, receiving part (501) receives a video/audio signal of a television broadcast sent from a broadcasting station. The video/audio signal received by receiving part (501) is sent to detecting/separating part (502). Said detecting/separating part (502) detects an information signal multiplexed to the video/audio signal that has been sent. The information signal detected with detecting/separating part (502) is separated from the video/audio signal, and it is sent to judgment part (504). Here, the type of information signal refers to an earthquake alarm, election report, or other information type. The information signal with type judged by judgment part (504) is sent to recording part (505), and, after recording in recording part (505), the signal is sent to synthesis part (507). At the same time, detecting/separating part (502) sends the video/audio signal to MPEG encoder (503). Said MPEG encoder (503) encodes the video/audio signal that has been sent, and sends the signal to recording part (505). Here, when a digital broadcasting or other video/audio signal has been encoded, the video/audio signal may be directly sent from detecting/separating part (502) to recording part (505). Said recording part (505) respectively records the video/audio signal and the information signal sent from MPEG encoder (503) and judgment part (504) in assigned

regions. In this case, in recording part (505), regions for recording the various signals are guaranteed from the beginning, that is, recording region 1 for recording a video/audio signal and recording region 2 for recording an information signal are guaranteed. Said MPEG decoder (506) decodes the video/audio signal recorded in recording part (505), and it sends the signal to synthesis part (507). Said synthesis part (507) synthesizes the information signal sent from recording part (505) with the video/audio signal sent from MPEG decoder (506), and it sends the resulting signal to output part (508). The video/audio signal sent to output part (508) is then viewed by the user together with, e.g., an earthquake alarm, election report, or other information.

[0058]

Said modem (510) carries out regular communication with a server that sends an EPG via a telephone line or the like, and the EPG is downloaded. The downloaded EPG is recorded via EPG receiving part (509) in recording part (505).

[0059]

Here, when an information signal is detected and separated by detecting/separating part (502) and sent to judgment part (504), judgment part (504) searches the EPG recorded in recording part (505) with the type of information signal and the content of the information signal as keywords, and it judges whether a news program or a special program pertaining to the information signal will be broadcast. When a news program or a special program pertaining to the information signal will be broadcast, the program broadcasting date and time are obtained automatically, and timer recording is set automatically.

[0060]

Also, when an information signal is received, a program to be recorded may be preset by the user. Here, the program to be recorded mainly refers to a news program pertaining to the information signal. In addition, the user may also set a program to be recorded corresponding to an earthquake alarm, election report, or other information type signal. Also, when an EPG is refreshed for broadcasting a special program pertaining to an information signal, the EPG after refreshing is searched, and a news program or a special program pertaining to the information signal is automatically set for timer recording.

[0061]

As explained above, for the information display device in Embodiment 3 of the present invention, even if the user is away from home so that the user cannot set a program for timer

recording, an earthquake alarm or other information signal for timer recording can still be automatically set.

[0062]

Also, the user can check a newspaper to determine the broadcast time of an information signal, and operation for setting timer recording for a hard disk recorder can be omitted. Also, even if the broadcast time of a TV program is changed due to a special program or the like, timer recording can still be set without setting at a wrong time.

[0063]

Embodiment 4

In the following, Embodiment 4 of an information display device corresponding to the invention described in Claims 24-27 of the present invention will be explained with reference to Figure 6. Figure 6 is a block diagram illustrating the constitution of the information display device (hard disk recorder) in Embodiment 4 of the present invention.

[0064]

As shown in the figure, (601) represents a receiving part (tuner), (602) represents a detecting/separating part, (603) represents an MPEG encoder, (604) represents a judgment part, (605) represents a recording part (hard disk), (606) represents an MPEG decoder, (607) represents a synthesis part, (608) represents an output part (display arranged on a TV screen or front panel or the like), (609) represents a data transmission part, and (610) represents a modem.

[0065]

In the following, operation of an information display device having the aforementioned constitution will be explained. Here, receiving part (601) receives a video/audio signal of a television broadcast sent from a broadcasting station. The video/audio signal received by receiving part (601) is sent to detecting/separating part (602). Said detecting/separating part (602) detects an information signal multiplexed to the video/audio signal that has been sent. The information signal detected with detecting/separating part (602) is separated from the video/audio signal, and it is sent to judgment part (604). Here, the type of information signal refers to an earthquake alarm, election report, or other information type. The information signal with type judged by judgment part (604) is sent to recording part (605), and, after recording in recording part (605), the signal is sent to synthesis part (607). At the same time, detecting/separating part (602) sends the video/audio signal to MPEG encoder (603). Said MPEG encoder (603) encodes the video/audio signal that has been sent, and sends the signal to

recording part (605). Here, when the digital broadcasting or other video/audio signal has been encoded, the video/audio signal may be directly sent from detecting/separating part (602) to recording part (605). Said recording part (605) respectively records the video/audio signal and the information signal sent from MPEG encoder (603) and judgment part (604) in assigned regions. In this case, in recording part (605), regions for recording the various signals are guaranteed from the beginning, that is, recording region 1 for recording a video/audio signal and recording region 2 for recording an information signal are guaranteed. Said MPEG decoder (606) decodes the video/audio signal recorded in recording part (605), and it sends the signal to synthesis part (607). Said synthesis part (607) synthesizes the information signal sent from recording part (605) with the video/audio signal sent from MPEG decoder (606), and it sends the signal to output part (608). The video/audio signal sent to output part (608) is then viewed by the user together with, e.g., an earthquake alarm, election report, or other information.

[0066]

Also, when the information signal is received, the information signal is recorded in recording part (605), and it is sent by means of data transmission part (609) to modem (610). Said modem (610) transfers the information signal sent from the data transmission part through a telephone line to a cell phone or other portable terminal. Here, the portable terminal to which the information is transferred may be preset by the user with a remote controller, front panel, or other operating means.

[0067]

Also, as described in Embodiment 3, when an information signal is received, since timer recording is set for a news program or a special program pertaining to the information signal received, when the program set for timer recording is actually recorded, MPEG encoder (606) [sic; (603)] may extract frames at a prescribed interval while the program is encoded. The extracted frame images are recorded in recording part (605), and the interval for extraction of frames may be set by the user using a remote controller, front panel, or other operating means. The frame images recorded in recording part (605) are sent via data transmission part (609) to modem (610). Said modem (610) transfers the frame images sent from the data transmission part via a telephone line to a cell phone or other portable terminal. Here, the portable terminal where the frame images are transferred may be preset by the user with a remote controller, front panel, or other operating means. Also, the interval of frame extraction may be carried out [sic; set] for each cut line of program scenes.

[0068]

In addition, the information signal and frame images transferred to the portable terminal may be set for each type of information signal by the user with a remote controller, front panel, or other operating means. Consequently, with the information display device in Embodiment 4 of the present invention, even if the user is away from home and cannot learn of detailed emergency information, the user can still view a news program or a special program pertaining to the information signal at a remote site.

[0069]

Effect of the present invention

As explained above, the invention described in Claim 1 of the present invention provides an information display device characterized by the fact that it is a video/audio receiver that receives a video/audio signal with an information signal multiplexed in it, and it has the following means: a receiving means that receives said video/audio signal, plural output means that outputs said video/audio signal or a video/audio signal different from said video/audio signal, an information signal detecting means that detects whether the information signal is multiplexed in the video/audio signal received with said receiving means, an information signal separating means that separates said information signal from said video/audio signal when said information signal is multiplexed in said video/audio signal, and an information signal synthesis means that synthesizes said information signal with the video/audio signal sent to the output means and sends the obtained synthesized signal to said output means. Consequently, even if the user is watching a video/audio signal received from a VCR, a television game, or other external video/audio device, the user still can be notified of broadcasting emergency information in real time.

[0070]

The information display device described in Claim 2 of the present invention pertains to the information display device described in Claim 1, characterized by the fact that it has a recorder that records said information signal separated with said information signal separating means. Consequently, even if the user is away from home and cannot watch the TV, or, although the user watches the TV and the eyes of the user move from the TV due to another matter, the user still can be quickly notified of emergency information. In addition, display of the content of emergency information that has been received is possible at a preferable time, so the user can check emergency information at a desired time.

[0071]

The information display device described in Claim 3 of the present invention pertains to the information display device described in Claim 2, characterized by the fact that it has an information signal synthesis means that synthesizes the information signal recorded in said recorder with the video/audio signal being sent to the output means now in use. Consequently, even if the user is away from home and cannot watch the TV, or, although the user watches the TV and the eyes of the user move from the TV due to another matter, the user still can be notified of emergency information quickly. In addition, display of the content of emergency information that has been received is possible at a preferable time, so the user can check emergency information at a desired time.

[0072]

The information display device described in Claim 4 of the present invention pertains to the information display device described in any of Claims 1-3, characterized by the fact that it has a display means that displays the information signal separated with said information signal separating means or the information signal recorded in said recorder. Consequently, the information signal can be viewed without missing any portion of the information. This is advantageous.

[0073]

The information display device described in Claim 5 of the present invention pertains to the information display device described in any of Claims 2-4, characterized by the fact that it has a list display means that displays all information signals recorded in said recorder as a list. Consequently, all information can be simply displayed, and the user can view it at a desired time.

[0074]

The information display device described in Claim 6 pertains to the information display device described in any of Claims 2-4, characterized by the fact that it has an all-time-ON display means that carries out all-time-ON display for information signals recorded in said recorder with said output means or said display means. Consequently, the user can view the information in real time at any time. This is an advantage.

[0075]

The information display device described in Claim 7 of the present invention pertains to the information display device described in Claim 6, characterized by the fact that it has a display OFF means that turns OFF the display of said information signals at any time preset by

the user. Consequently, when the user does not want to view the information, the user can shut out all information.

[0076]

The information display device described in Claim 8 of the present invention pertains to the information display device described in Claim 6, characterized by the fact that it has an automatic switching display means that automatically switches each information signal for display at a preset timing assigned by the user when plural information signals are recorded in said recorder. Consequently, all information automatically can be obtained.

[0077]

The information display device described in Claim 9 of the present invention pertains to the information display device described in Claim 6, characterized by the fact that it has a manual information display OFF means that turns OFF display of said information signal by an operation of the user. Consequently, the information can be easily shut out.

[0078]

The information display device described in Claim 10 of the present invention pertains to the information display device described in Claim 6, characterized by the fact that it has a manual switching display means that switches the information signal for display by an operation of the user when plural information signals are recorded in said recorder. Consequently, desired information can be viewed at a preferable time.

[0079]

The information display device described in Claim 11 pertains to the information display device described in any of Claims 1-10, characterized by the fact that it has a voice announcing means that announces by a voice the presence of said information signal when said information signal is output from said output means or displayed on said display means. Consequently, the attention of the user can be engaged.

[0080]

The information display device described in Claim 12 of the present invention pertains to the information display device described in any of Claims 1-10, characterized by the fact that it has a voice output means that converts the content of the information signal separated with said information signal separating means or the information signal recorded in said recorder to a

voice with a voice conversion means, and outputs the voice. Consequently, the information can be detected by voice.

[0081]

The information display device described in Claim 13 of the present invention pertains to the information display device described in Claim 2, characterized by the fact that it has an information signal judgment means that compares an information signal newly separated with said information signal separating means with said information signal recorded in said recorder and determines whether they are information signals of the same content when said information signal is already recorded in said recorder, and a recording means that records the newly separated information signal separated with said information signal separating means only when it is judged by said information signal judgment means that the information signals are different. Consequently, repeating of information can be prevented.

[0082]

The information display device described in Claim 14 of the present invention pertains to the information display device described in Claim 13, characterized by the fact that it has an information signal judgment means that compares the information signal newly separated with said information signal separating means with said information signal recorded in said recorder when an information signal is already recorded in said recorder. Consequently, it has the advantage that repetition of information can be prevented.

[0083]

The information display device described in Claim 15 of the present invention pertains to the information display device described in Claim 13, characterized by the fact that it has an information signal judgment means that functions as follows: when annexed information for identifying the type and content of said information signal is contained in said information signal recorded in said recorder, it compares the information signal newly separated with said information signal separating means with said information signal recorded in said recorder by means of their annexed information. Consequently, it has the advantage that repetition of information can be prevented.

[0084]

The information display device described in Claim 16 of the present invention pertains to the information display device described in Claim 13, characterized by the fact that it has an information signal judgment means that functions as follows: when an information signal is

recorded in said recorder at the receiving time of said receiving means, it compares the information signal newly separated with said information signal separating means with said information signal recorded in said recorder, and judges whether the difference in the receiving time is longer than a desired time, and it has a recording means that records the information signal newly separated with said information signal separating means in the receiving time zone only when it is judged by said information signal judgment means that the receiving time of said information signal is longer than the desired time. Consequently, it has the advantage that repetition of information can be easily prevented.

[0085]

The information display device described in Claim 17 of the present invention pertains to the information display device described in Claim 3, characterized by the fact that it has an automatic deleting means that synthesizes the information signal recorded in said recorder with the video/audio signal sent to the output means now in use and sends the result to said output means, and then automatically deletes the information signal recorded in said recorder. Consequently, it has the advantage that storage of outdated information can be prevented automatically.

[0086]

The information display device described in Claim 18 of the present invention pertains to the information display device described in Claim 3, characterized by the fact that it has a manual detecting means that functions as follows: after the information signal recorded in said recorder is synthesized with the video/audio signal sent to the output means now in use and the result is sent to the output means, the user checks it and deletes said information signal recorded in said recorder. Consequently, it has the advantage that storage of outdated information can be prevented.

[0087]

The information display device described in Claim 19 of the present invention pertains to the information display device described in any of Claims 1-18, characterized by the fact that it has the following means: an information signal detecting means that detects the VBI (Vertical Blanking Interval) of the video signal received with said receiving means, and detects XDS (eXtended Data Service) in the VBI, and an information signal separating means that functions as follows: when said XDS is detected with said information signal detecting means, said XDS or the element of said XDS is separated from said video signal and is used as the information

signal. Consequently, it has the effect that the information signal can be easily detected and separated.

[0088]

The information display device described in Claim 20 of the present invention pertains to the information display device described in any of Claims 1-18, characterized by the fact that it has an information signal detecting means that functions as follows: when the video/audio signal received with said receiving means is a digital broadcast signal, it detects whether the information signal is multiplexed in the user data region of the digital broadcast signal. Consequently, it has the effect that the information signal can be easily detected and separated.

[0089]

The information display device described in Claim 21 of the present invention pertains to the information display device described in any of Claims 1-20, characterized by the fact that it has the following parts: said receiver that records the video/audio signal received with said receiving means, a program setting means that allows the user to set a program pertaining to the type and content of said information signal, and a timer recording means that functions as follows: when said information signal detecting means detects said information signal, timer recording is set for a program pertaining to the type and content of said information signal preset with said program setting means. Consequently, even if the user is away from home and cannot set timer recording for a program, timer recording for a program pertaining to an earthquake alarm or the like can still be set automatically. This is an advantage.

[0090]

The information display device described in Claim 22 of the present invention pertains to the information display device described in any of Claims 1-20, characterized by the fact that it has the following parts: said recorder that records the video/audio signal received with said receiving means, and a timer recording means that functions as follows: when said information signal is detected with said information signal detecting means, said information signal is searched with a keyword of an EPG (Electronic Program Guide), and, if a corresponding program is present, the program is set for timer recording. Consequently, the user can check a newspaper or the like to determine a broadcasting time, so work needed for setting a timer recording for a hard disk recorder can be avoided.

[0091]

The information display device described in Claim 23 of the present invention pertains to the information display device described in Claim 22, characterized by the fact that it has the following means: an EPG refreshing means that refreshes the EPG when said information signal is detected with said information signal detecting means, and a timer recording means that searches said information signal with a keyword of the EPG after refreshing of the EPG, and, if a corresponding program is present, the program is set for timer recording. Consequently, even if the broadcasting time of a TV program is changed due to a special program, etc., timer recording can be set for the program without a mistake.

[0092]

The information display device described in Claim 24 of the present invention pertains to the information display device described in any of Claims 1-23, characterized by the fact that it has an information signal transfer means that transfers the information signal separated with said information signal separating means to another terminal. Consequently, even if the user is away from home and cannot watch TV to be informed of detailed emergency information, news and a special program can still be viewed at a remote site. This is an advantage.

[0093]

The information display device described in Claim 25 of the present invention pertains to the information display device described in any of Claims 21-23, characterized by the fact that it has the following means: an image extracting means that extracts images in frame units from said program when the program set for timer recording by said timer recording means is recorded, and an information signal transfer means that transfers the images extracted with said image extracting means to another terminal. Consequently, the user can check the content of information as images even at a remote site.

[0094]

The information display device described in Claim 26 of the present invention pertains to the information display device described in Claim 25, characterized by the fact that it has the following means: a scene cut line detecting means that detects the scene cut lines of said program, and an image extracting means that extracts the frame images from said scene cut lines. Consequently, the user can check the content of the information as images even at a remote site.

[0095]

The information display device described in Claim 27 of the present invention pertains to the information display device described in any of Claims 24-26, characterized by the following facts: it has an information signal identifying means that identifies the information signal separated with said information signal separating means, and a timer recording means that sets any type of information signal for timer recording; and it has an image extracting means that functions as follows: when the program set for timer recording with said timer recording means is recorded, images are extracted in frame units from a program pertaining to the information signal of any type among said programs. Consequently, the user can view images of related information even at a remote site.

Brief description of the figures

Figure 1 is a block diagram illustrating the constitution of the information display device (TV) in Embodiment 1 of the present invention.

Figure 2 is a block diagram illustrating the constitution of the information display device (hard disk recorder) in Embodiment 2 of the present invention.

Figure 3 is a schematic diagram illustrating a list of information signals displayed on the display part in the information display device (hard disk recorder) in Embodiment 2 of the present invention.

Figure 4 is a schematic diagram illustrating operation of the judgment part of the information display device (hard disk recorder) in Embodiment 2 of the present invention.

Figure 5 is a block diagram illustrating the constitution of the information display device (hard disk recorder) in Embodiment 3 of the present invention.

Figure 6 is a block diagram illustrating the constitution of the information display device (hard disk recorder) in Embodiment 4 of the present invention.

Figure 7 is a block diagram illustrating the constitution of an emergency information notification scheme of the prior art.

Explanation of symbols

- 101 Receiving part
- 102 Detecting/separating part
- 103 External input part
- 104 Judgment part
- 105 Switching part
- 106 Synthesis part
- 107 Output part

201	Receiving part
202	Detecting/separating part
203	MPEG encoder
204	Judgment part
205	Recording part
206	MPEG decoder
207	Synthesis part
208	Output part
501	Receiving part
502	Detecting/separating part
503	MPEG encoder
504	Judgment part
505	Recording part
506	MPEG decoder
507	Synthesis part
508	Output part
509	EPG receiving part
510	Modem
601	Receiving part
602	Detecting/separating part
603	MPEG encoder
604	Judgment part
605	Recording part
606	MPEG decoder
607	Synthesis part
608	Output part
609	Data transmission part
610	Modem
701	Information display device
702	Antenna
703	Signal line
704	Screen
705	Emergency information

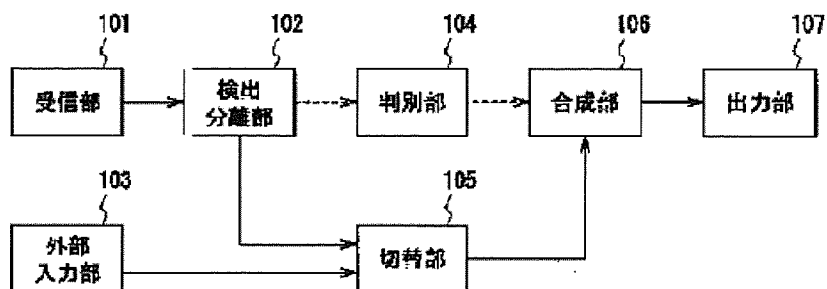


Figure 1

Key: 101 Receiving part
 102 Detecting/separating part
 103 External input part
 104 Judgment part
 105 Switching part
 106 Synthesis part
 107 Output part

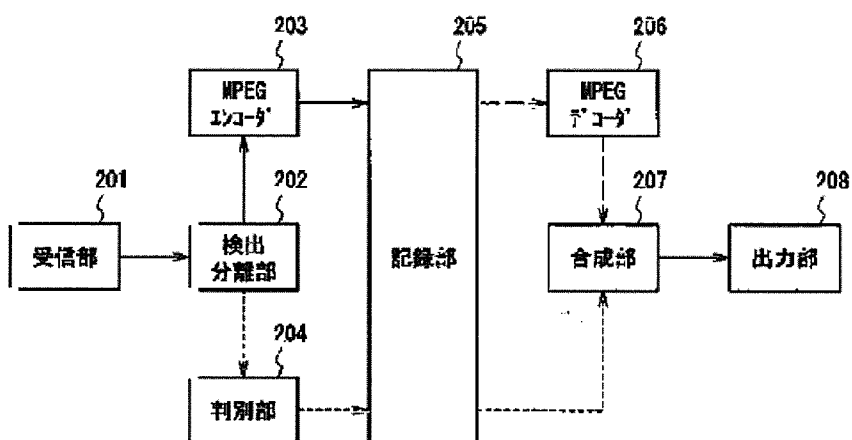


Figure 2

Key: 201 Receiving part
 202 Detecting/separating part
 203 MPEG encoder
 204 Judgment part
 205 Recording part
 206 MPEG decoder
 207 Synthesis part
 208 Output part

緊急情報一覧表	
日時	内容
1. 21日 13:45	△△△△△△△△△△△△△△△△
2. 23日 15:23	○○○○○○○○○○○○○○○○○○○○
3. 30日 00:09	××××××××××××××××××
	⋮

Figure 3

Key: a Emergency information list
 b Date/time
 Content
 c 21st
 23rd
 30th

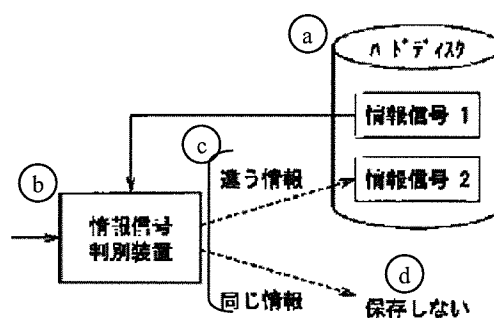


Figure 4

Key: a Hard disk
 Information signal 1
 Information signal 2
 b Information signal judgment device
 c Different information
 Same information
 d Not to be stored

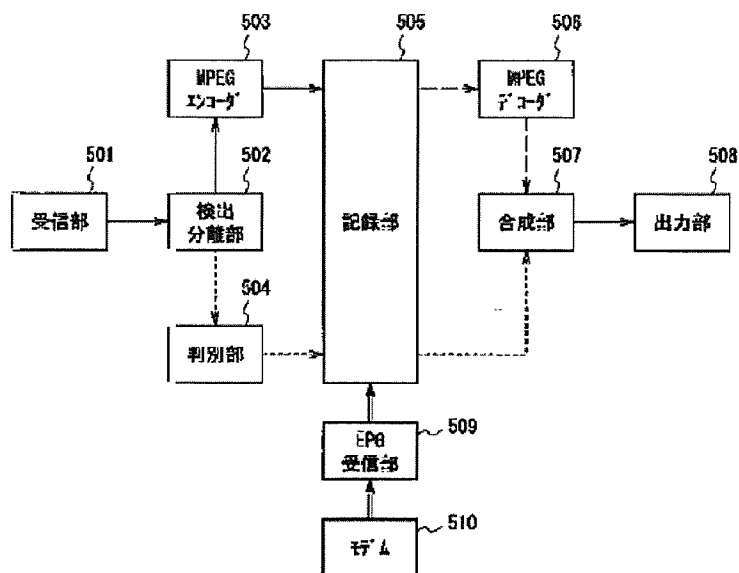


Figure 5

- Key:
- 501 Receiving part
 - 502 Detecting/separating part
 - 503 MPEG encoder
 - 504 Judgment part
 - 505 Recording part
 - 506 MPEG decoder
 - 507 Synthesis part
 - 508 Output part
 - 509 EPG receiving part
 - 510 Modem

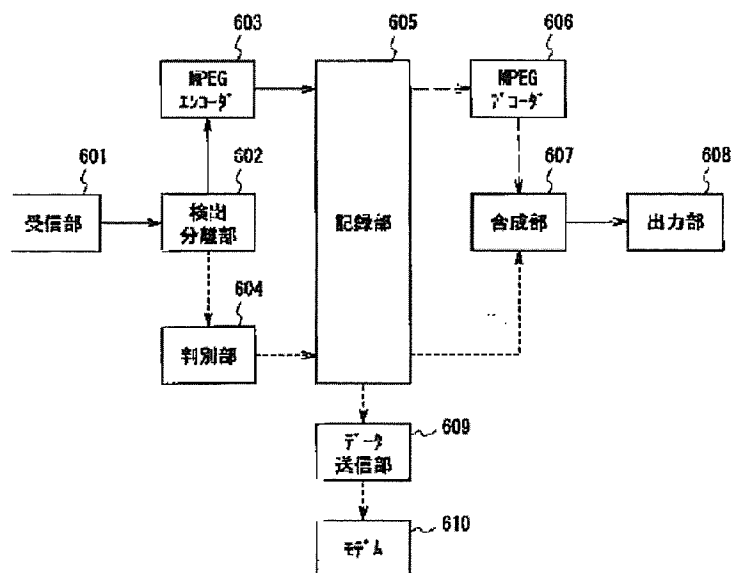


Figure 6

Key:	601	Receiving part
	602	Detecting/separating part
	603	MPEG encoder
	604	Judgment part
	605	Recording part
	606	MPEG decoder
	607	Synthesis part
	608	Output part
	609	Data transmission part
	610	Modem

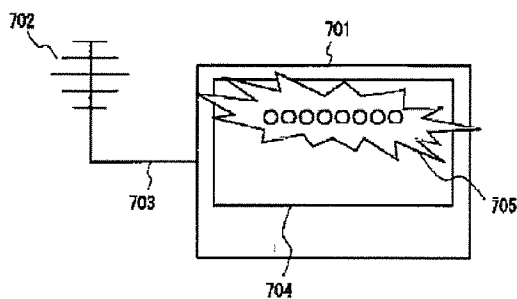


Figure 7

Continued from front page

(51) Int. Cl. ⁷	Identification Codes	FI	(Reference)
H 04 N	5/781	H 04 N	5/782 K
	7/025		7/08 A
	7/03		
	7/035		

(72) Takahira Kubo

Matsushita-Kotobuki Electronics Industries, Ltd.
8-1 Furushin-machi, Takamatsu-shi, Kagawa-ken

F terms (for reference)

5C018 FA03 FA04 FB03 FB05
5C025 BA25 BA28 CA09 DA05 DA08
5C063 AB03 AB05 CA23 CA34 DA03
DA13 DB02 EB33
5K061 AA03 BB07 CC45 DD00 EF07
EF08 FF03 FF11 JJ07